

**STATUS OF MINERAL RESOURCE INFORMATION FOR THE
CHITIMACHA INDIAN RESERVATION, LOUISIANA**

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SUMMARY AND CONCLUSIONS

Most of the hydrocarbon in southern Louisiana has been discovered by a geophysical-geological exploration program with the emphasis on seismic investigations. Evidently the seismic data did not indicate any structural features within the Reservation area attractive to exploratory drilling by the oil industry. Therefore additional investigations pertaining to the geology of the Reservation do not seem warranted at the present time.

INTRODUCTION

This report was prepared for the U.S. Bureau of Indian Affairs (BIA) by the U.S. Geological Survey and the U.S. Bureau of Mines under an agreement to compile and summarize available information on the geology, mineral resources, and potential for economic mineral development of certain Indian lands. Source material included published and unpublished reports, personal communications with exploration companies active in the area, interviews with State and Federal officials, and talks with tribal individuals.

Chitimacha Indian Reservation ([Figure 1](#)) in St. Mary Parish, Louisiana, is about 85 miles west of New Orleans, 12 miles northeast of the Gulf of Mexico, and 1 mile southwest of the Atchafalaya Basin floodway. Total area of the reservation is 262.23 acres (0.41 square mile), and population was 248 in 1978 (BIA).

Altitude of most the reservation is between 3 and 20 feet above mean sea level. Much of the land is used to grow sugar cane, and the remainder,

mostly along roadways, is utilized principally for housing. Access to the reservation is by State Route 326, which connects with U.S. Highway 90 at Baldwin (population 2,117) 4 miles to the south. A spur track of the Missouri Pacific Railroad passes through the reservation.

Principal towns of the region are Franklin (population 9,325) 8 miles south, Morgan City (population 16,586) 24 miles southeast, Jeanerette (population 6,322) 9 miles west, and New Iberia (population 30,147) 20 miles northwest. Lafayette (population 68,908), a major petroleum industry center in the Gulf Coast area, is located at the intersection of U.S. Highway 90 and Interstate 10, about 42 miles northwest.

MAPS

Chitimacha Reservation lies within the boundaries of two 7.5-minute series topographic maps, the Charenton and Franklin quadrangles, and is shown on the U.S. Army Map Service 1:250,000-scale topographic map entitled New Orleans. Also, it may be identified by section, township, and range location on the map of St. Mary Parish prepared by the Louisiana Department of Transportation and Development, Office of Highways.

PHYSIOGRAPHY

The Chitimacha Indian Reservation is in the West Gulf Coastal Plain Section of the Coastal Plain Province. The surface of the land extends from an elevation less than 5 feet to less than 20

feet above sea level. The entire reservation is on the natural levee of the Bayou Teche, with the inhabited part of the reservation along the highest part of the levee.

GEOLOGY

The exposed sediments consist of clay and silt deposited on the natural levee during time of flooding of the Bayou Teche. The subsurface sediments were penetrated by Texaco Corp. Chitimacha Tribe No. 1 well consists of inter-bedded clay, silt, and sand to the total depth of 15,175 ft. The depositional environment of the sediments ranges from continental, to shallow-water marine, to deep-water marine. The age of the sediments where penetrated by the well ranges from Holocene to Lower Oligocene.

fields for 1974 are listed in [Table 1](#). Cumulative production data from these fields through 1974 are listed in [Table 2](#).

The Charenton Oil Field to the east and the Jeanerette Oil Field to the west owe their existence to the folding and faulting caused by piercement salt domes. The known top of the salt in the Charenton Oil Field is at a depth of 10,000 feet and at a depth of 9,925 feet in the Jeanerette Oil Field. The relief on the top of the salt in the Jeanerette Field is known to be more than 6,000 feet and a similar amount can be presumed for the Charenton Field, thus the potential sand reservoirs under the area of the Reservation are in a large structural swale between the two salt domes. If any hydrocarbon (oil or natural gas) was present in these sands, it migrated up the slope of the swale until reaching entrapment against the salt, a fault, or an anticlinal fold.

MINERAL COMMODITIES

No economic deposits of mineral resources of any type have been reported as being present on any part of the Chitimacha Indian Reservation. Sand, gravel, or oyster shells are not known to be present, but the silty clay present at the surface might be a source of tile, brick, or bloating material for lightweight aggregate.

Hydrocarbon has not been reported within the area of Chitimacha Indian Reservation but three oil and gas fields are located in close proximity to the reservation: Charenton is about 1,500 feet to the east, Jeanerette is 1.3 miles west, and Franklin is 6 miles south. Production data from these three

TABLE 1
Oil and Gas Production and Value in 1974 from Charenton, Franklin,
and Jeanerette Fields, St. Mary Parish, La.

Field	Oil (barrels)	Condensate (barrels)	Total value*
Charenton	646,600	300	\$ 4,224,000
Franklin	375,100	13,600	2,538,000
Jeanerette	<u>361,800</u>	<u>112,600</u>	<u>3,098,000</u>
Total	1,383,500	126,500	9,860,000

Field	Natural gas (thous. cubic feet)	Casinghead gas (thous. cubic feet)	Total value**
Charenton	592,800	544,500	\$ 349,000
Franklin	1,320,500	247,900	481,000
Jeanerette	<u>15,642,600</u>	<u>962,100</u>	<u>5,098,000</u>
Total	17,555,900	1,754,500	<u>5,928,000</u>
Grand total			15,788,000

*Based upon statewide average value of crude oil (\$6.53 per bbl).

**Based upon statewide average value of natural gas (\$0.307 per mcf).

TABLE 2
Cumulative Oil and Gas Production Through 1974 from Charenton, Franklin,
and Jeanerette Fields, St. Mary Parish, La.

Field	Oil (barrels)	Condensate (barrels)	Natural gas and casinghead gas (thous. cubic feet)
Charenton	50,533,000	565,000	40,300,000
Franklin	11,986,000	493,000	52,581,000
Jeanerette	<u>39,289,000</u>	<u>5,118,000</u>	<u>397,282,000</u>
Total	101,808,000	6,176,000	490,163,000

Charenton Oil and Gas Field

Charenton oil and gas field was discovered in September 1936. Five producing horizons between 954 and 2,060 feet in the Pliocene were found in the discovery well. Subsequently, 357 productive wells were drilled in the field through 1974. Productive zones are found in both Pliocene and Miocene overlying a deep-seated salt dome. Shallowest salt encountered was at 10,002 feet. More recent drilling has been occurring mostly at the eastern edge of the field. Principal operators are The California Company, W. L. Estis, Lamson & Bennett, Amoco Producing Co, W.H. Talbot, and Tenneco, Inc. Market outlet has been through the Interstate Oil Pipeline.

Figure 2 outlines Charenton oil and gas field, and clearly shows its close proximity to the Chitimacha Indian Reservation. The nearest productive well is about 1,500 feet from the reservation. In Figure 2 a number of oil wells are shown in the western most part of the field--those closest to the reservation. Also, dry holes with total depth in feet have been spotted on the reservation and between the reservation and the field.

On July 25, 1957, Texaco was awarded lease No. 66538 at a bid of \$153.77 per acre on the full 262.23-acre reservation for oil and gas exploration. The bonus payment was \$40,323.11. A rental of \$1.25 per acre was paid for four years--\$327.79 annually through 1960. Texaco completed a 15,183-foot dry hole near the center of the reservation on November 15, 1960. This lease was terminated on November 30, 1964.

Subsequently, Independent Exploration Company of New Orleans made five seismic shots on the reservation at a cost of \$20.00 each.

In early 1974 a proposed oil and gas lease sale covering the reservation was advertised in the New Orleans Times Picayune, Dallas Times, and the Oil & Gas Journal. Additional advertising was placed by the U.S. Geological Survey Office in Tulsa, Okla. the Branch of Land Operations, Choctaw Agency, Philadelphia, Miss., and the Chitimacha Tribal Office, Charenton, La. On March 7, 1974, the specified time for bid opening, no bids were received, no personal inquiries made, nor other interest shown by any oil company.

The north-south string of dry holes at the western edge of the Charenton oil and gas field (Figure 2) seems to preclude any westward extension of the field. Dry holes near Bayou Teche, at the eastern border of the reservation in section 28, Texaco's deep probe near the center of the reservation and a deep hole near the southern border appear to discount the possibility of substantial hydrocarbon accumulations underlying the reservation. The southern and western parts of the reservation have not been drilled, however, seismic investigations of the area apparently have not indicated any attractive structure. Although the possible accumulation of limited quantities of shallow oil and/or gas, or larger very deep deposits cannot be fully ruled out, additional exploration efforts do not seem justified at the present.

Nonmetallic Minerals in St. Mary Parish

Salt, stone (oyster and clam shell), and lime have been produced annually in St. Mary Parish in

recent years. A small quantity of sand and gravel was produced in 1972.

Salt in both rock and brine has been produced from the Belle Isle salt dome, about 26 miles south-southeast of the Chitimacha Indian Reservation. Belle Isle is one of the famous "Five Islands" that have been developed for salt along the Louisiana coast. (The "Five Islands" are local topographic highs--up to 75 feet or so--overlying shallow salt domes in an otherwise relief-free tidelands area along and close to the Louisiana coast). A salt mine, in the Belle Isle salt dome, about 1 mile from the Gulf of Mexico, is operated by Cargill, Inc., of Minneapolis, Minn. Top of the salt is 150 feet deep, and mining, which began in 1963, now is down to about 1,200 feet. Recent values of salt in Louisiana are \$39.00 per ton for evaporated salt, \$6.50 per ton for rock salt, and \$3.75 per ton for brine salt.

Oyster and clam shell is dredged from dead shell beds in coastal area lakes and bays. Lake Charles Dredging & Towing Co. of Lafayette, La., has a dredging operation in southern St. Mary Parish. Value of shell in recent years has been about \$2.25 per ton. Shell output is used for highway work as road base and roadstone, and as aggregate in concrete and bituminous road construction. Shell also is used as raw material for cement and lime manufacture.

Sand and gravel is a scarce mineral commodity in southern Louisiana. Some small deposits have been worked periodically in St. Mary Parish; however, most quality material is brought in from deposits that are worked in the central and northern part of the State. The price of the shipped-in sand and gravel now commonly exceeds \$15.00 per ton,

largely owing to the high transportation cost. Average value of sand and gravel at Louisiana pits is about \$2.50 per ton.

Nonmetallic Minerals in Vicinity of Chitimacha Indian Reservation

Charenton salt dome is immediately east of the Chitimacha Indian Reservation. In contrast to the shallow salt domes underlying the "Five Islands" along the Louisiana coast, Charenton is a deep-seated structure. Shallowest salt encountered during oil well drilling in the Charenton oil and gas field was at 10,002 feet. This apparent top of the salt dome is located in section 27, about 2.5 miles east-southeast of the reservation ([Figure 2](#)). There are no known sulfur deposits associated with the Charenton salt dome.

Because of the vast salt resources in the many shallow salt domes along the Gulf Coast, commercial production of salt from this deep-seated dome is not foreseen. Salt beds that are the source of the Charenton salt dome and underlie the reservation probably are several miles beneath the surface; therefore, salt recovery from the salt beds under the reservation is even more remote than from the salt dome.

Neither shell nor sand and gravel is produced commercially in the vicinity of the Chitimacha Indian Reservation. Moreover, based upon a reconnaissance of the area and conversations with land owners, drillers, and contractors in nearby areas, there does not seem to be much hope of uncovering any substantial shell or sand and gravel deposits on the reservation.

A silty clay that occurs at the surface over parts of the reservation might possibly be usable for manufacture of tile, brick, or lightweight aggregate. Properties of a similar clay taken from an area about 5 miles southwest of the reservation are shown in [Table 3](#).

TABLE 3
Properties of Surface Clay Similar to That on Chitimacha Indian Reservation (Dixon, 1967)

LOCALITY NO: SM 2

Sample No: LGS 3 (Rodriguez test hole 3; sample 2)

Test: USBM

Location: Approximately 3.75 miles airline west from city of Baldwin, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 14 S., R. 8 E., Jeanerette quadrangle.

Description: Clay material, gray and yellow; consisting principally of silt, small amount of illite-type clay, and some manganese oxide staining; specific gravity 2.2; Quaternary.

Raw properties: Drying shrinkage at 105°C, percent-----1.5
Water of plasticity range, percent-----25.3 to 32.4

Fired properties:

Temperature (°F)	Color	Hardness	Shrinkage (percent)	Absorption (percent)	Sp. gr. (apparent)
1800	Buff	Hard	3.1	15.8	2.6
2000	Tan	Hard	4.7	16.4	2.7
2100	Light brown	Hard	4.7	14.3	2.7
2200	Light brown	Very hard	6.3	6.5	2.6
2300	Chocolate	Steel	9.4	3.0	2.4
2400	Olive	Steel	Bloated	Bloated	2.0

Bloating test (flash fired)

Temperature (°F)	Sp. gr. (apparent)
2282	1.7
2318	1.8
2354	1.7
2390	1.5
2444	1.3

Remark Under flash firing specific gravity of 1.3 attained only at the highest firing temperature; sticking present in bloated material; not suitable for making lightweight aggregate.

Potential use: Structural tile

REFERENCES

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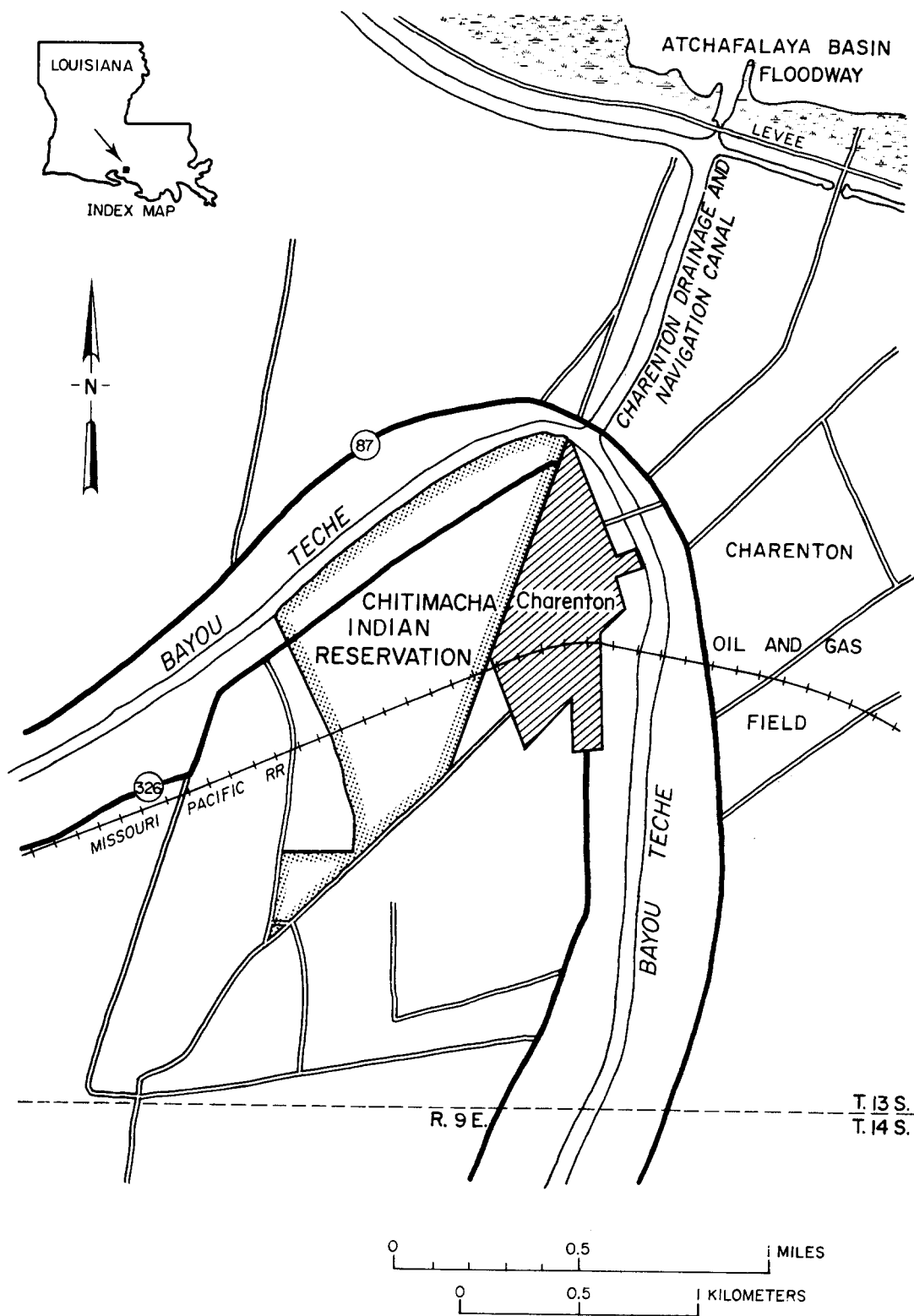


Figure 1. Location map, Chitimacha Indian Reservation, St. Mary Parish, La.

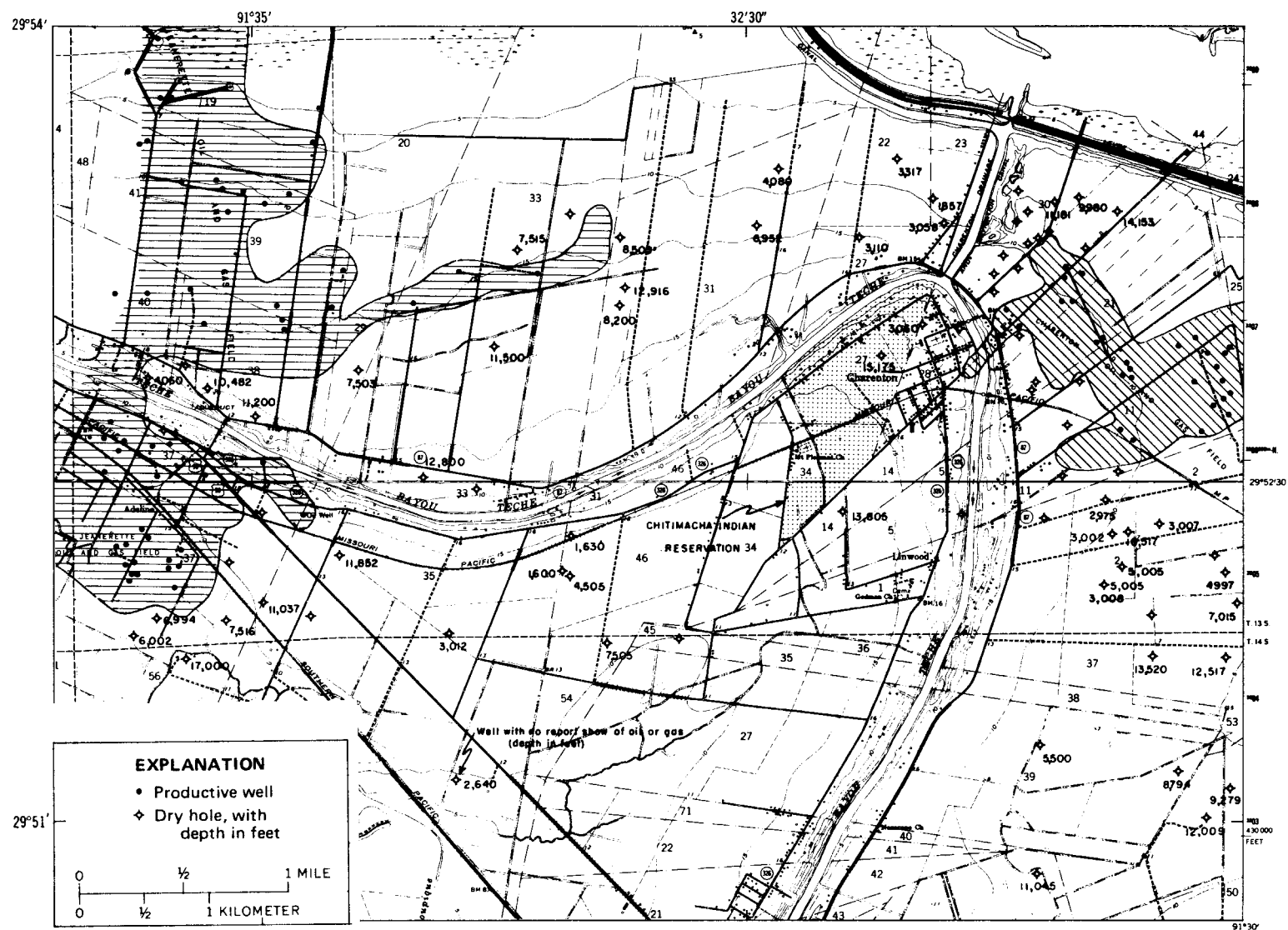


Figure 2. Oil field and dry hole map of Chitimacha Indian Reservation and vicinity, St. Mary Parish, Louisiana.